



**BOEM Final PEIS  
for G&G Activities on the Mid-  
and South Atlantic OCS**

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# Final Programmatic EIS

## Three G&G Activities

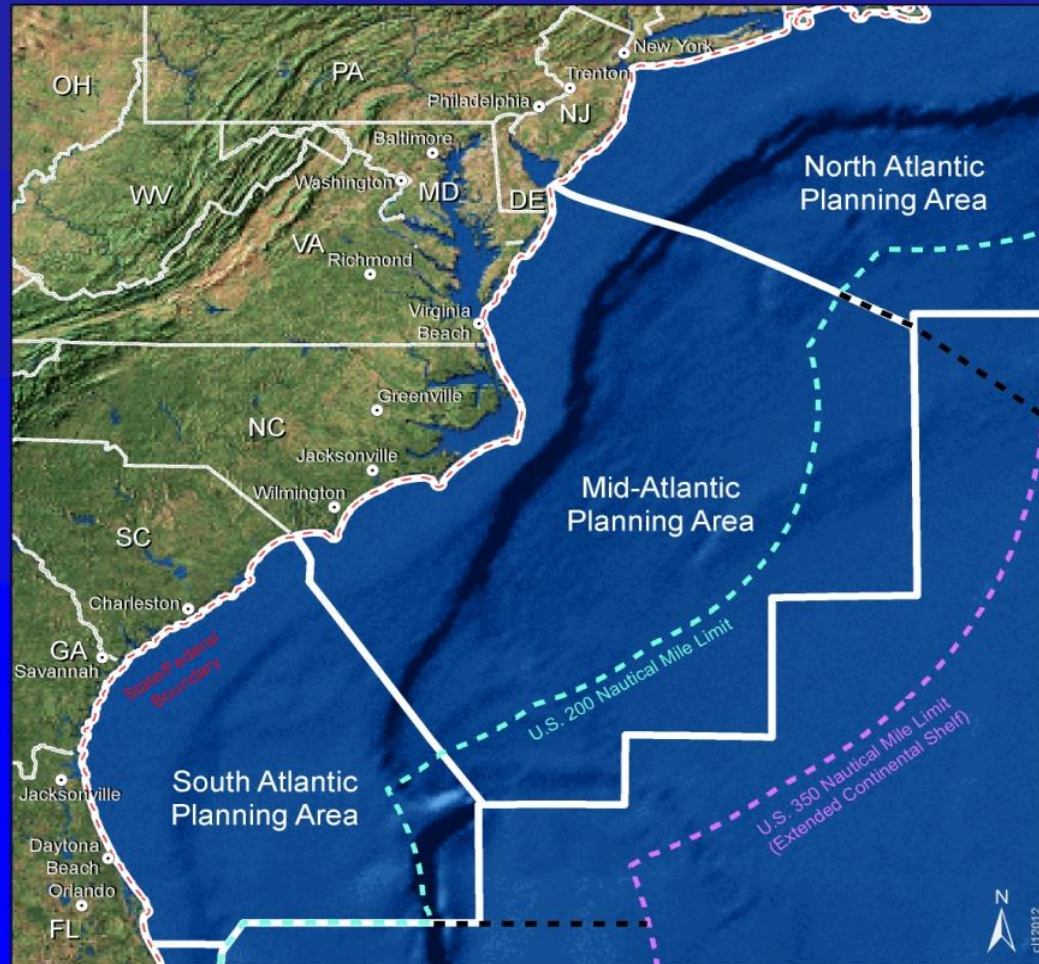
- Oil and gas
- Renewable energy
- Marine minerals

# Types of G&G Activities

- Geological
  - Coring
  - Shallow test drilling
  - Deep stratigraphic tests
- Geophysical
  - 2- and 3-dimensional seismic
  - Controlled source electromagnetic surveys (CSEM)
  - High-resolution geophysical surveys
    - Multibeam echosounder, sidescan sonar, and boomers
  - Gravity and magnetic surveys (sea and airborne)



## Proposed Geological & Geophysical Activities in the Mid- and South Atlantic OCS Planning Areas



April 2012

# Purpose of PEIS

- Assess the potential environmental impact of various types of G&G activity conducted on the Mid- and South Atlantic OCS
- Project activity levels and evaluate mitigation measures to reduce or eliminate impacts on affected resources
- Provide information and an analysis of impacts for BOEM and other agencies before decisions to authorize G&G activities

# Impact Producing Factors

- Active Acoustic Sound Sources
- Vessel and Equipment Noise
- Vessel and Aircraft Traffic
- Vessel strike
- Disturbance
- Trash and Debris
- Ingestion
- Entanglement
- Accidental Fuel Spills



# Potential for Impacts

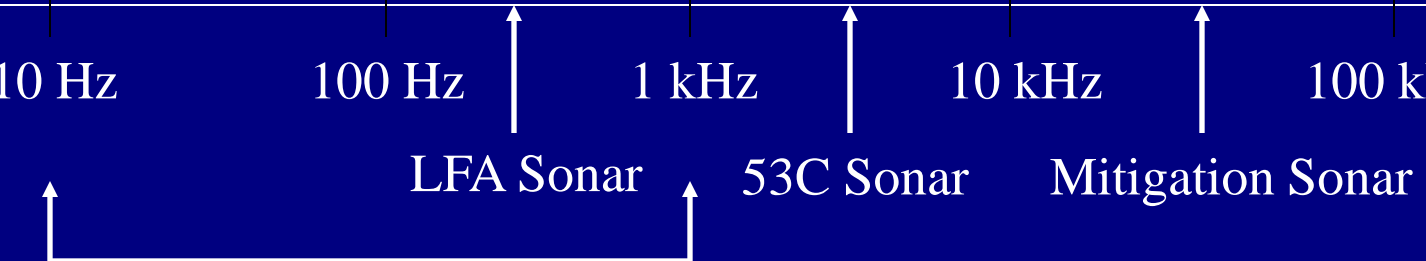
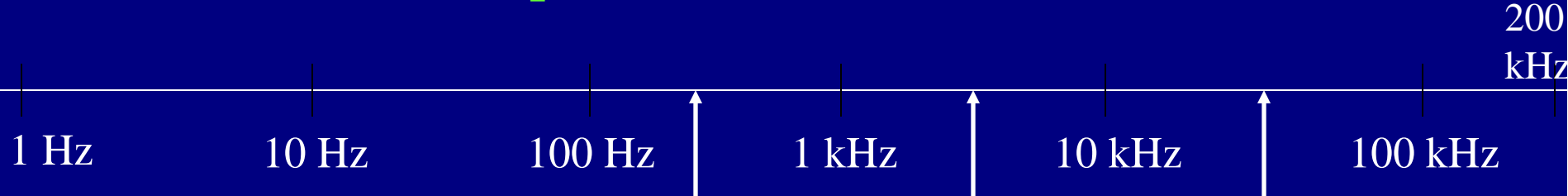
Potential for impacts

Range of impacts

State of science

- sound source (frequency, exposure level, duration of exposure, distance)
- environment (water depth, bottom type)
- species (hearing ability, life history)
- individual (size/age, 'motivation', behavioral context)

# Frequency Relationships Between Marine Animal Sounds and Human Noise Sources





# Range of Impacts

Potential for impacts

Range of impacts

State of science

- No effect
- Habituation
- Altered behavior
- Masking
- Hearing loss
- Physiological effects  
(sub lethal)
- Serious injury or  
mortality

# State of Science

Potential for impacts

Range of impacts

State of science

- Research effort
  - Fish (little)
  - Fisheries (very little)
  - Invertebrates (near nothing)
- Still need basic information on what fish hear and if invertebrates can hear
- Rely on basic biological principles and lessons learned from marine mammal world

# Alternatives - Summary

- **Alternative A**

- Time/area closure for Northern Right Whales' seasonal management areas (SMA's)
- Notices to Lessees and Operators (NTL's), with some modifications, based on BOEM/BSEE current practices in Gulf of Mexico that include the following:
  - Mitigation measures and protected species observers (NTL 2012-Joint-G02)
  - Vessel strike avoidance (NTL 2011-Joint-G01)
  - Marine trash and debris awareness (NTL-2012-BSEE-G01)

- **Alternative B**

- All mitigations in Alternative A
- Expanded time/area closures for Northern Right Whales' SMA's
- Closure area for nesting sea turtles – central Florida
- Separation between simultaneous seismic surveys
- Required passive acoustic monitoring

- **Alternative C**

- No Action for Oil and Gas G&G Activity, *Status Quo* for Renewable Energy and Marine Mineral G&G Activities

# Summary of Alternatives

Mitigation Measure	Alternative		
	A	B	C
Time-Area Closure for North Atlantic Right Whales	Yes	Expanded	No
Seismic Survey Protocol (ramp-up, visual observers, and startup and shutdown requirements)	Yes	Yes	N/A
Passive Acoustic Monitoring (PAM)	Optional	Required	N/A
Separation between Simultaneous Seismic Surveys	No	Yes	N/A
HRG Survey Protocol (for non-airgun surveys)	Yes	Yes	Yes
Guidance for Vessel Strike Avoidance	Yes	Yes	Yes
Guidance for Marine Debris Awareness	Yes	Yes	Yes

# Significance Criteria

- **Negligible** – Little or no measurable impacts are observed or expected.
- **Minor** – Impacts are detectable, but are neither extensive nor severe.
- **Moderate** – Impacts are detectable, short-term, extensive, and severe; *or* impacts are detectable, short-term or long-lasting, localized, and severe; *or* impacts are detectable, long-lasting, extensive or localized, but less than severe.
- **Major** – Impacts are detectable, extensive, and severe.

# Potential Effects

<b>Resource</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>
Benthic Communities	Negligible	Negligible	N/A
Marine Mammals	Moderate	Moderate	N/A
Sea Turtles	Negligible-Moderate	Negligible-Minor	N/A
Marine and Coastal Birds	Negligible-Minor	Negligible-Minor	N/A
Fisheries Resources and EFH	Minor	Minor	N/A
Commercial Fisheries	Minor	Minor	N/A
Recreational Fisheries	Negligible-Minor	Negligible-Minor	N/A

# Mid-Atlantic Council

## Seismic testing concerns

- Significant short term economic impacts on Atlantic Coast fishing communities associated with stock rebuilding over last 10-15 years
- Mid-Atlantic Council concerned about potential impacts on living marine resources of G&G Activities off US Atlantic Coast, especially seismic activities

## BOEM PEIS on Proposed Geological and Geophysical Activity in Mid- and South Atlantic OCS

- Clear that G&G activities have potential for impacts on the marine environment
- Sound in the ocean is of concern for a variety of marine life, especially marine mammals
- Long term consequences of G&G activities on fish are unknown, especially seismic
- Impacts on benthic invertebrates (shellfish) also unknown



# Airguns can cause a range of impacts on marine life

- broad habitat displacement (MM)
- potential disruption of vital behaviors essential to foraging and reproduction
- Short term decline in catch rates for cod and haddock in seismic testing area
- Evidence of damage to squid statoliths

# **Mid-Atlantic Council Position BOEM PEIS on Proposed G&G Activities in Mid- and South Atlantic OCS**

- Draft PEIS provides insufficient information about how these activities will impact fish, marine mammals, benthic communities, and ecosystem structure and function
- Mid-Atlantic Council cannot support PEIS in light of the uncertainty about potential negative environmental impacts and associated economic impacts on Mid-Atlantic fisheries

## **Mid-Atlantic Council Position BOEM PEIS on Proposed G&G Activities in Mid- and South Atlantic OCS**

- Council has worked diligently to rebuild mid-Atlantic fish stocks
- Mid-Atlantic commercial fisheries worth about \$0.5 billion (dockside) and millions of recreational anglers spend hundreds of millions of dollars on fishing related expenses annually
- Council is concerned that proposed G&G activities could contravene its efforts to conserve and manage LMRs under its jurisdiction

## Mid-Atlantic Council Vision Statement

- Healthy and productive marine ecosystems supporting thriving, sustainable marine fisheries that provide the greatest overall benefit to stakeholders
- Council's objectives embodied in its Vision statement are only feasible in the context of a healthy and resilient ecosystem

# BOEM PFEIS Comment Period

- 30-day comment period was due to close April 7 (prior to MAFMC meeting)
- Council requested 60-day comment period extension (Moore letter)
- Allows for additional Council comment on PFEIS

# Questions?



## Summary points

- Mitigation measures (mm&st) related to observations of animals in area of seismic testing greatly compromised during inclement weather conditions
- Impacts on fish and fisheries largely dismissed; “fish will just move”
- Concerns over impact on fish aggregations should be re-emphasized (especially spawning aggregations)